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QUIZZES

Practice Test-1(Chemical Bonding)



10 Questions



7 min

Topics

Atomic Size, Trends in IE, EA and EN, Types of Bonds (Lewis Concept), Energetics of Bond Formation

Start Quiz

SAEED MDCAT

SAEED MDCAT TEAM



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06 : 57



1/10



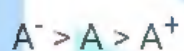
7 min



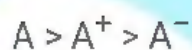
Hint

Q : Which of the following is correct relation for atomic radius

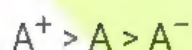
A



B



C



D



SAEED MDCAT

SAEED MDCAT TEAM



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1

2

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4

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6

7

06 : 53



2/10



7 min



Hint

Q : Along period of periodic table shielding effect

A

Increases

B

Decreases

C

Remains constant

D

First increases then decreases

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

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4

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6

7

06 : 49



3/10



7 min



Hint

Q : An element with highest first ionization energy

A

Nitrogen

B

Boron

C

Oxygen

D

Beryllium

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1

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6

7

06 : 44



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4/10



7 min



Hint

Q : Which of following does not affect I.E in group

A

Shielding Effect

B

Effective Nuclear charge

C

Size of atom

D

Nature of orbital

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 40



5/10



7 min



Hint

Q : The valence shell is

A

The highest energy level occupied by electrons

B

The set of orbitals used to make triple bonds

C

The orbitals belonging to the entire molecule

D

The lowest energy level occupied by electrons

SAEED MDCAT

SAEED MDCAT TEAM



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1

2

3

4

5

6

7

06 : 34



6/10



7 min



Hint

Q : Which of the following have their outer most shell complete in atomic form

A

Noble gases

B

Alkali metals

C

Coinage metals

D

Gun metals

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

1

2

3

4

5

6

7

06 : 30



7/10



7 min



Hint

Q : An atom loses or gains electrons, to

A

Gain stability

B

Form a bond

C

Complete its outermost shell

D

All are accurate justifications

SAEED MDCAT

SAEED MDCAT TEAM



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1

2

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4

5

6

7

06 : 25



8/10



7 min



Hint

Q : The compound which have three types of bonds is

A

NH_3

B

H_2O

C

NH_4Cl

D

NaCl

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

4

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8

9

10

06 : 21



9/10



7 min



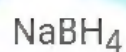
Hint

Q : A compound which has all the three types of chemical bonds

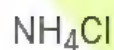
A



B



C



D

All of these

SAEED MDCAT

SAEED MDCAT TEAM



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4

5

6

7

8

9

10

Q : Most predominantly ionic compounds are obtained by the combination of elements of groups

- ☐ IVA and VIIIA
- ☒ IA and VIIA
- ☐ IIA and VIA
- ☐ IIA of VA

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QUIZ RESULT

Practice Test-1(Chemical Bonding)



1 hr



1 mark



0%

C/10

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SAEED MDCAT TEAM



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Correct



Incorrect



Incorrect



1/10

Q : Which of the following is correct relation for atomic radius



$A^- > A > A^+$



$A > A^+ > A^-$



$A^+ > A > A^-$



$A^- > A^+ > A$

Explanation

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Cation is always smaller than neutral atom and anion is always larger than neutral atom



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Correct



Unattempted



Incorrect



2/10

Q : Along period of periodic table shielding effect



Increases



Decreases



Remains constant



First increases then decreases

Explanation

Along the period shielding effect does not change, because these are electrons of inner shells which do not change while present in valence shell

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correct



3/10

Q : An element with highest first ionization energy



Nitrogen



Boron



Oxygen



Beryllium

Explanation

Along the period IE increases from left to right but there are abnormal trends

$V A > VI A, II A > III A$

Due to stable electronic configuration



correct



4/10

Q : Which of following does not affect I.E in group



Shielding Effect



Effective Nuclear charge



Size of atom



Nature of orbital

Explanation

Ionization energy does not depend upon nature of orbital in the group because all the elements in the group have same orbital



Correct



5/10



Incorrect



5/10

Q : The valence shell is



The highest energy level occupied by electrons



The set of orbitals used to make triple bonds



The orbitals belonging to the entire molecule



The lowest energy level occupied by electrons

Explanation

The valence shell is the highest energy level occupied by electrons



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Correct



Unanswered



Incorrect



6/10

Q : Which of the following have their outer most shell complete in atomic form



Noble gases



Alkali metals



Coinage metals



Gun metals

Explanation

SAEED MDCAT TEAM

Only noble gases in periodic table which have complete outermost shell.



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correct



7/10

Q : An atom loses or gains electrons, to



Gain stability



Form a bond



Complete its outermost shell



All are accurate justifications

Explanation

When an atom loses or gains an electron it produces ions which react to form bond in this way atom gains stability.



correct



8/10

Q : The compound which have three types of bonds is



NH_3



H_2O



NH_4Cl



NaCl

Explanation

The compound which have three types of bonds is NH_4Cl

NH_4Cl = Nitrogen makes 3-covalent and one coordinate covalent bond. NH_4^+ ion makes ionic bond with chloride(Cl^-) ion.



Correct



Unattempted



Incorrect



9/10

Q : A compound which has all the three types of chemical bonds



$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$



NaBH_4



NH_4Cl



All of these

Explanation

SAEED MDCAT TEAM

All these compounds have ionic bond, covalent bond and co-ordinate covalent bond

Ionic bond in Cu^{+2} and SO_4^{-2} , Covalent bond in water molecules as well as in sulphate ion, while coordinate covalent bond formed between water molecules with Cu^{+2} and sulphate ion.



Correct



Unattempted



Incorrect



10/10

Q : Most predominantly ionic compounds are obtained by the combination of elements of groups



IVA and VIIIA



IA and VIIA



IIA and VIA



IIA of VA

Explanation

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Strongest ionic bond formed between group IA & VIIA elements, although group IIA & VIA elements also form ionic bond.

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QUIZZES

Practice Test-2 (Chemical Bonding)

10 Questions

1 Hour

10 Marks

Start Quiz

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

Q : Which one has one pair with central atom



SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT



2

3

4

5

6

7

Q : All of the following pairs have same shapes except

☐ SO_2 and AlCl_3

☐ CCl_4 and SiCl_4

☐ H_2S and H_2O

☐ NH_3 and PH_3

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q:

Bond angle in paraffins is

- ☐ 180°
- ☒ 105°
- ☐ 120°
- ☐ 109.5°

SAEED MDCAT

SAEED MDCAT TEAM

f SAEEDMDCAT

Q : Which one of the following has maximum bond angle

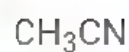
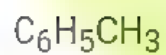


SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : Among following molecules, which has different number of π electrons than others



SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT



Q : Hybridization is the extended form of _____ theory

- ☐ VSEPR
- ☐ Lewis
- ☐ Molecular orbital
- ☐ Valence bond

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : If n atomic orbitals mix together with different shapes and energy, then no of bonds formed will be



n



$2n$



n^2



Cannot be predicted

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

Q : When water donates its electron pair to hydrogen ion to form hydronium ion, hybridization is changed from

- ☐ sp^2 to sp^3
- ☒ sp^3 to sp^2
- ☐ sp^3 to sp
- ☐ Remains unchanged

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT



Q:

Which are the species in which central atom undergoes sp^3 hybridization?

(i) SnCl_2 (ii) NF_3 (iii) (iv) H_2S

Select the correct answer using the code given below



i and ii



ii, iii and iv



i, iii and iv



i, ii and iii

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SAEED MDCAT TEAM



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Q:

All the atoms are coplanar in the molecule_____



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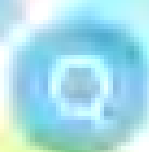
SAEED MDCAT TEAM

SAEEDMDCAT



QUIZ RESULT

Practice Test-2(Chemical Bonding)



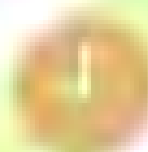
Qs



Time



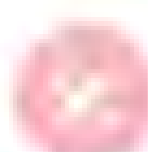
C/10



Time



Score



0%

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT





correct

1/10

Q : Which one has lone pair with central atom



BF_3



CH_4



NH_4^+



H_2O

Explanation

H_2O has lone pair with central atom. There are two lone pairs on central oxygen atom in water but on central atom of BF_3 , CH_4 and NH_4^+ does not have lone pair



correct



2/10

Q : All of the following pairs have same shapes except



SO_2 and AlCl_3



CCl_4 and SiCl_4



H_2S and H_2O



NH_3 and PH_3

Explanation

SO_2 — triangle pyramidal

AlCl_3 — triangular



Correct



3/10

Q:

Bond angle in paraffins is



180°



105°



120°



109.5°

Explanation

SAEED MD CAT TEAM

Alkane are also called paraffins and have bond angle of 109.5°



Correct



Question



Incorrect



4/10

Q : Which one of the following has maximum bond angle



CCl_4



NF_3



NH_3



CO_2

Explanation

SAEED MDCAT TEAM

CO_2 has linear structure and angle of 180° which is maximum



SAEEDMDCAT



Correct



Unattempted



Incorrect



5/10

Q : Among following molecules, which has different number of π -electrons than others



SO_3



C_6H_6



$\text{C}_6\text{H}_5\text{CH}_3$



CH_3CN

Explanation

SAEED MDCAT TEAM

Each molecule have 3 π bonds or six π electrons, while in methyl cyanide there are 2 π bonds and 4 π electrons.

SAEEDMDCAT



correct



6/10

Q : Hybridization is the extended form of _____ theory



VSEPR



Lewis



Molecular orbital



Valence bond

Explanation

SAEED MDCAT TEAM

Hybridization is the extended form of Valence bond theory, which was given to solve some problems and limitations of VBT



Correct



Unanswered



Incorrect



7/10

Q : If n atomic orbitals mix together with different shapes and energy, then no of bonds formed will be



n



$2n$



n^2



Cannot be predicted

Explanation

SAEED MDCAT TEAM

Number of hybrid orbitals is equal to number of bond formed



SAEEDMDCAT



correct



8/10

Q : When water donates its electron pair to hydrogen ion to form hydronium ion, hybridization is changed from



sp^2 to sp^3



sp^3 to sp^2



sp^3 to sp



Remains unchanged

Explanation

SAEED MDGCAT TEAM

In H_2O sp^3 and in H_3O^+ = sp^3



SAEEDMDGCAT



correct



9/10

Q:

Which are the species in which central atom undergoes sp^3 hybridization?

(i) SnCl_2 (ii) NF_3 (iii) (iv) H_2S

Select the correct answer using the code given below



i and ii



ii, iii and iv



i, iii and iv

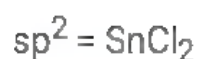


i, ii and iii



SAEEDMDCAT

Explanation





Correct



Question



Correct



10/10

Q:

All the atoms are coplanar in the molecule_____



CH_4



BF_3



PH_3

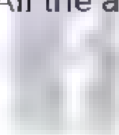


NH_3

Explanation

SAEED MDCAT TEAM

All the atoms are coplanar in the molecule BF_3



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QUIZZES

Practice Test-3(Chemical Bonding)

100 Questions

1 hour

Topics

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SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT

Q : Which one has maximum bond dissociation energy

☐ F_2

☒ Cl_2

☐ Br_2

☐ I_2

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : Strongest bond among the following is



SAEED MDCAT

SAEED MDCAT TEAM

 SAEEDMDCAT

Q : Bond length decreases with

- ☐ Increase in size of atom
- ☐ Increase in the number of bonds between the atoms
- ☐ Decreases in the number of bonds between the atoms
- ☐ Decrease in the s-character

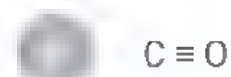
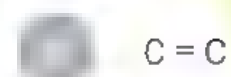
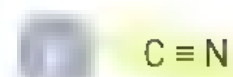
SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q:

The molecule having highest bond energy is



SAEED MDCAT

SAEED MDCAT TEAM

f SAEEDMDCAT

Q : Which of the following has minimum bond dissociation energy

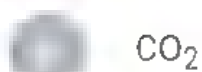


SAEED MDCAT

SAEED MDCAT TEAM

 SAEEDMDCAT

Q : Which one of the following molecule is polar



SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : Ionic compounds do not show the phenomenon of isomerism because bonds are

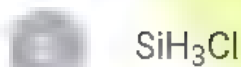
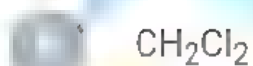
- ☐ Directional and rigid
- ☒ Non directional and rigid
- ☐ Non directional and non rigid
- ☐ All of the above

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : CH_4 is a nonpolar molecule. Which of the following similar molecules is also non-polar



SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT



Q : Greater the dipole moment

- ☐ Greater is the ionic nature
- ☐ Smaller the ionic nature
- ☐ Lesser is the polarity
- ☐ Linear the structure

SAEED MDCAT

SAEED MDCAT TEAM

SAEEDMDCAT

Q : NH_3 has a net dipole moment but BF_3 has zero dipole moment because of

- ☐ B is less electronegative than N
- ☐ F is more electronegative than H
- ☐ BF_3 is pyramidal while BF_3 is trigonal planar
- ☐ NH_3 is pyramidal while BF_3 is trigonal planar

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SAEED MDCAT TEAM

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QUIZ RESULT

Practice Test-3(Chemical Bonding)



Q



Time



C / 10



Time



Score



0%

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT





correct



1/10

Q : Which one has maximum bond dissociation energy



F_2



Cl_2



Br_2



I_2

Explanation

SAEED MDCAT TEAM

Bond energy (kJmol^{-1}) $F_2 = 155$, $Cl_2 = 242$, $Br_2 = 193$, $I_2 = 151$

SAEEDMDCAT



correct



2/10

Q : Strongest bond among the following is



H-H



F-F



C-C



N-N

Explanation

smaller the size stronger the bond

Bond energy kJ/mol

H-H = 436, C-C = 348, F-F = 154,
N-N = 163



Correct



Unattempted



Incorrect



3/10

Q : Bond length decreases with



Increase in size of atom



Increase in the number of bonds between the atoms



Decreases in the number of bonds between the atoms



Decrease in the s-character

Explanation

SAEEDMDCAT TEAM
Greater the bond order shorter the bond length



SAEEDMDCAT



correct



4/10

Q:

The molecule having highest bond energy is



$N = N$



$C \equiv N$



$C \equiv C$



$C = O$

Explanation

SAEED MD CAT TEAM

$N = N$ has non polar nature while among other, $C = O$ has polarity as well as smaller size of O atom.



Correct



Unanswered



Incorrect



5/10

Q : Which of the following has minimum bond dissociation energy



I_2



Br_2



F_2



Cl_2

Explanation

SAEED MDCAT TEAM

Larger the size of atom smaller the bond energy.



SAEEDMDCAT



correct



6/10

Q : Which one of the following molecule is polar



BF_3



CCl_4



SO_2



CO_2

Explanation

SO_2 molecule is polar with one lone pair on central sulphur atom but BF_3 , CCl_4 and CO_2 are nonpolar molecules with regular geometries with zero dipole moments.



Practice Test-3 (Chemical Bonding)



Correct



Unattempted



Incorrect



7/10

Q : Ionic compounds do not show the phenomenon of isomerism because bonds are

A

Directional and rigid

B

Non directional and rigid

C

Non directional and non rigid

D

All of the above

Explanation

Ionic compounds do not show the phenomenon of isomerism because ionic bonds are non-directional and non-rigid.



Practice Test-3 (Chemical Bonding)



Correct



Unattempted



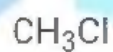
Incorrect



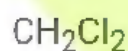
8/10

Q : CH_4 is a nonpolar molecule. Which of the following similar molecules is also non-polar

A



B



C



D



Explanation

SAEED MDCAT TEAM

Explanation: both have net dipole moment zero due to regular geometry



Practice Test-3 (Chemical Bonding)



Correct



Unattempted



Incorrect



9/10

Q : Greater the dipole moment



A Greater is the ionic nature



B Smaller the ionic nature



C Lesser is the polarity



D Linear the structure

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SAEED MDCAT TEAM



SAEEDMDCAT



Practice Test-3 (Chemical Bonding)



Correct



Unattempted



Incorrect



10/10

Q : NH_3 has a net dipole moment but BF_3 has zero dipole moment because of

A

B is less electronegative than N

B

F is more electronegative than H

C

BF_3 is pyramidal while BF_3 is trigonal planar

D

NH_3 is pyramidal while BF_3 is trigonal planar

Explanation

NH_3 is pyramidal (irregular shape) while BF_3 is trigonal planar (regular shape)